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Selecting a decision model for economic evaluation: a case study and review

Published: October 1998

Volume 1, pages 133–140 (1998) Cite this article



Health Care Management Science

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Abstract

The increased use of modelling techniques as a methodological tool in the economic evaluation of health care technologies has, in the main, been limited to two approaches – decision trees and Markov chain models. The former are suited to modelling simple scenarios that occur over a short time period, whilst Markov chain models allow longer time periods to be modelled, in continuous time, where the timing of an event is uncertain. In the context of economic evaluation, a less well developed technique is discrete event simulation, which may allow even greater flexibility.

Taking the economic evaluation of adjuvant therapies for breast cancer as an illustrative example, the process of building a decision tree, a Markov chain model, and a discrete event simulation model are described. The potential benefits and problems of each approach are discussed.

The suitability of the modelling techniques to economic evaluations of health care programmes in general is then discussed. This section aims to illustrate the areas

in which the alternative modelling methods may be most appropriately employed.

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Cite this article

Karnon, J., Brown, J. Selecting a decision model for economic evaluation: a case study and review. *Health Care Management Science* **1**, 133–140 (1998). https://doi.org/10.1023/A:1019090401655

Issue date

October 1998

DOI

https://doi.org/10.1023/A:1019090401655

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